User Manual

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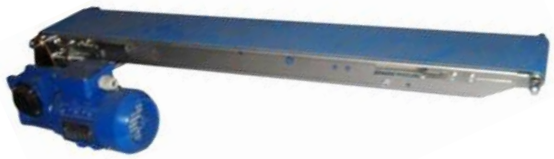
Conveyor belts

Machine nr.: ……

Type:

Motor-belts



Wall-mount-belts

Coupling-belts

Trough-belts

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Preface

This user manual is written for anyone working on or with the machine. Before working on or with the machine, first read this manual.

This user manual contains important instructions / information on how to use the machine in a safe, professional and economical way and must always be available where the machine is used.

In addition to this user manual, the mandatory rules and regulations for accident prevention and environmental protection in the country and place of use of the machine must also be observed.

This user manual contains information on the operation of the machine with all the possible options. Use only the information that applies to your machine. Depending on the intensity of use and customer requirements, this machine can be equipped with various options. Contact your sales consultant.

Supplier details if not directly supplied by Javo BV. Dealer stamp:

Javo BV is not responsible for any errors in this manual or the consequences thereof.

Javo BV is not liable for damage or consequential damage caused by operating errors, lack of expert maintenance and any use other than described in this manual.

The liability of Javo BV also expires once modifications or additions are made without written permission of Javo BV.

This machine is suitable for process and environmental conditions as stated in section "Specifications and Tolerances" of this manual. Any other use is not authorized by Javo BV and this allows the operator and / or its environment at risk.

Inhoudsopgave

1 Technical specifications and tolerances 3
1.1 Type plate 4
2 Safety 5
2.1 Provisions 5
2.2 Explanation of icons and symbols 6
2.3 Risks 7
2.4 Entrapment of fingers between two conveyor belts 7
2.5 Falling objects 7
3 Description of the machine 8
3.1 Motor-belts 8
3.2 Wall-mount-belts 8
3.3 Coupling-belts 8
3.4 Trough-belts 8
3.5 Options 9
3.6 Operation 9
3.7 Machine workstations 9
3.8 Controls 9
4 Transport 10
5 Mounting, installation and commissioning 11
5.1 Placement 11
5.2 Facilities to take care of by the user 11
5.3 Mounting / Connecting 11
5.4 Check rotation direction 12
5.5 Check conveyor tension 12
6 Operation 13
6.1 Start 13
6.2 Stop 13
6.3 Emergency stop (when present) 13
7 Maintenance 14
7.1 Preventive Maintenance 14
7.2 Fault list 15
7.3 Drawings and schemes 16
7.4 Spare parts 16
7.5 JavoNet 16
7.6 Customer support and advice 16
8 Disposal of machine or machine parts 16
9 EG-conformity statement 17

1 Technical specifications and tolerances

This machine is intended to be used for automatic transport of pots, trays or substrate only. This machine is meant for processing pots, substrate and other materials that are described in this manual only. Detailed operation of the machine is described in section "Operation".

This machine may be used only within the limits for specifications and tolerances of the order, on the assembly drawing and indicated in this manual. If the machine is used outside these specifications, Javo BV cannot take responsibility for this machine.

This machine is intended for products as agreed in the order confirmation only. To ensure the proper operation of this machine, only products with specifications and tolerances as specified in the order may be used.

Do not use the machine for purposes other than the intended purpose of Javo BV. This can lead to damage and danger to the operator and its environment.

This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Until proper CE Marking of the line is carried out, commissioning of this machine is prohibited.

Specifications	
Voltage	* 400Volt 50Hz 3~+N+ PE
Machine connection	16A 5pole
Power consumption	Depending on type of conveyor (see type plate)
Weight	Depending on type, length and width of conveyor
Length x width x height	Different sizes available on request
Material construction	Stainless steel or aluminum (option)
Material conveyor belt	PU (smooth belt) PVC (friction belt) Blue belt surface for vision applications
Fixed speed	Several possible gearboxes
Variable speed	Mechanical vario or frequency inverter
Year of construction	See type plate
Type product	As agreed in the order confirmation.

*Other possible in consolation

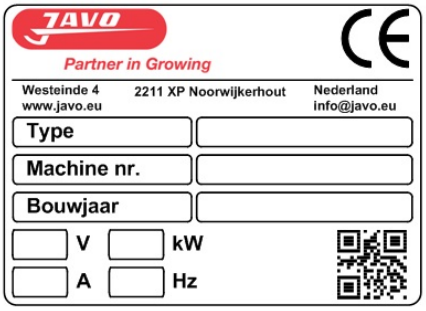
Belt type	Implementation	Drive	Length
Motor-belt	Motor under 0,18 KW	Fixed or vario with mechanical vario or freq. inverter	Verschillende maten op aanvraag mogelijk (standaard framelengte 1,2,3,6 meter lang en 150,200,250,400 mm breed)
	Motor side 0,37 KW	Fixed or freq. inverter	
	Motor side 0,37 KW OA2	Fixed or freq. inverter Larger drive roller for grip	
	Motor side 0,37 KW OA3	Fixed or freq. inverter Larger drive roller for grip (motor placement possible at all places)	
Wall-mount-belt	Depending on the length may be driven on both sides.	Fixed or freq. inverter	Max 100 m met 1 aandrijving, max 500 m met 2 aandrijvingen.
Coupling-belt	1 driven main part may be provided with max. 6 coupling parts (depending on the belt load).	Fixed or vario with mechanical vario or freq. inverter	3m or 6m frame length per share.
Trough-belt	Supports are always custom made.	Fixed or vario with mechanical vario or freq. inverter	Different sizes on request.

All belts are equipped with a linear guide string. Belts with a witdh of > 400 mm are equipped with two linear guide strings.

Other specifications possible on request.

1.1 Type plate

The type plate is placed onto the main cabinet door.



2 Safety

This machine is built according the state of the art technique and the accredited safety regulations. Despite this, the body and life from the user or third parties can be in danger when using it. There could also arise damage to the machine or other goods when using it.

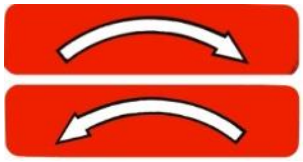
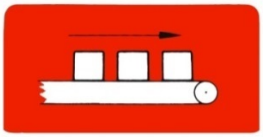
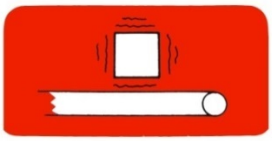
This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Untill proper CE Marking of the line is carried out, commissioning of this machine is prohibited.

2.1 Provisions

1. Operation and maintenance of this machine must be performed by qualified personnel in compliance with warnings on the machine and in accordance with the user manual. Keep children and other (unauthorized) persons away while using machine.
2. This machine is suitable for process and environmental conditions as stated in section "Specifications and Tolerances" of this manual only. Any other use is not authorized by Javo BV and this allows the operator and / or the environment at risk.
3. It is prohibited to modify this machine, without prior written approval of Javo BV.
4. Thermal fuses and torque limiters may not be set different upon delivery of the new machine. The thermal circuit breakers should never be used to turn on / off the machine.
5. This machine should be installed so that there is sufficient space remaining for providing safe instructions and / or performing maintenance and / or inspections. Put the brakes on the castors before the machine is turned on.
6. Keep the work area clean and well lit. Cluttered or dark areas invite accidents.
7. This machine is not suitable to be used outside. Electrical components are only splashproof. Keep the machine away from rain and moisture. When using the machine in a humid environment is unavoidable, you should use an RCD.
8. Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.
9. As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.
10. Do not stand on the machine when it is operating.
11. Never move the machine if the power cable and / or pneumatic supply is still connected.
12. Prescribed checks and maintenance in the user manual must be observed.
13. Allow the machine to be serviced and repaired by qualified personell only with original replacement parts.
14. In addition to the user manual, generally applicable statutory and other regulations regarding accident prevention and environmental protection have to be respected. This is also referred to handling of personal protective equipment.
15. Inform operating personnel before start maintenance. Interrupt if possible the power (mains), before start machine investigation or maintenance by turning off the main switch and locking the main switch. Pull the plug from the wall socket.
    a. As work must be done with power supply (mains) voltage on the machine, then arrange an additional person who can operate the emergency stop.
16. When a machine part is damaged or not working in the prescribed manner, the work must be interrupted immediately. Resumption allowed only when the machine part is repaired or replaced and checked. Consult your dealer if the machine is not functioning properly.
17. Machine and / or parts must be disposed in accordance with local laws and regulations.

2.2 Explanation of icons and symbols

Pictogram	Meaning
	Read and understand this manual before using the machine and / or performing maintenance.
	Remove Power (mains).
	Wear during all work on or with the machine safety shoes and safety glasses.
	Wear during cleaning and maintenance work on this machine also safety gloves and protective clothing.
	Warning. Important points and / or instructions regarding safety and / or injury prevention are marked with this warning sign.
	Dangerous electrical voltage. Dangerous electrical voltage present.
	Risk of crushing. Danger of moving or rotating parts.
	It is forbidden to wear Loose clothing, long hair and / or jewelry nearby moving parts of the machine.
	Trespassing.
	Do not rinse control cabinet Danger of moisture in the cabinet when it is rinsed with water.

Symbols that may be present on this machine			
Drill	Direction of movement 	Speed ground feeder (curved)	Speed ground feeder (straight)
Speed pot belt (curved)	Speed pot belt (straight)	Brush disc Rotofill	Tray belt Rotofill 
Rotor Rotofill 			

2.3 Risks

This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Untill proper CE Marking of the line is carried out, commissioning of this machine is prohibited.

2.4 Entrapment of fingers between two conveyor belts

Make sure that belts do not run towards each other.

2.5 Falling objects

View the seriousness of falling objects in relation to the weight and geometry of the object. Place side guides if necessary.

Contact Javo BV to discuss possible guides.

3 Description of the machine

3.1 Motor-belts

A motor-belt is a conveyor belt which is driven by one motor. The motor can be driven directly or driven with a Vario. A Vario can be a mechanical or frequency inverter driven. There are different lengths, widths and heights possible.

A motor-belt is dependent on the chosen model equipped with a main switch or a control panel with frequency inverter and switch. If a mechanical vario is chosen, the belt speed can be adjusted with the knob on the vario.

3.2 Wall-mount-belts

A wall-mount-belt is a conveyor belt which is driven by one or two motors, depending on the length of the belt. The motor can be powered directly or powered by a frequency inverter. There are different lengths, widths and heights possible.

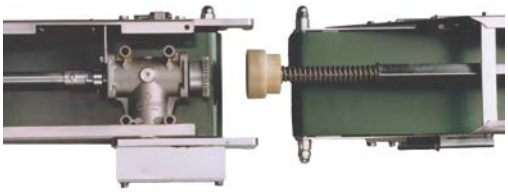
The surface of the belt is supported by rollers to minimize torque. A wall-mount-belt is dependent on the chosen model equipped with a main switch or a control panel with frequency inverter and main switch.

3.3 Coupling-belts

A coupling-belt is a conveyor belt which is driven by one motor. The motor can be driven directly or driven with a Vario. A Vario can be a mechanical or frequency inverter driven. There are different lengths, widths and heights possible.

A coupling-belt is dependent on the chosen model equipped with a main switch or a control panel with frequency inverter and main switch. If a mechanical vario is chosen, the belt speed can be adjusted with the knob on the vario.

A coupling-belt consists of one main section with motor drive and up to 6 coupling parts (depending on belt load) without motor drive. The coupling parts are connected with the main section. For this, the driving shaft is coupled, and the coupling part is placed in the recess of the previous portion so that the conveyor belts are placed at the same height.



These belts are widely used for temporary transportation lines in the greenhouse.

3.4 Trough-belts

A trough-belt is a conveyor belt which is driven by one motor. The motor can be driven directly or driven with a Vario. A Vario can be a mechanical or frequency inverter driven. There are different lengths, widths and heights possible. Actuation is often steered from a substrate bunker system which can automatically start belts.

A trough-belt is dependent on the chosen model equipped with a main switch or a control panel with frequency inverter and main switch. If there is a mechanical vario chosen, the belt speed can be adjusted with the knob on the vario.

Trough-belts are used for transporting substrate that is deposited directly into the Trough band. Transport is often over long distances.

It is possible to provide scrapers, which scrape adherent substrate of the Trough-belts.

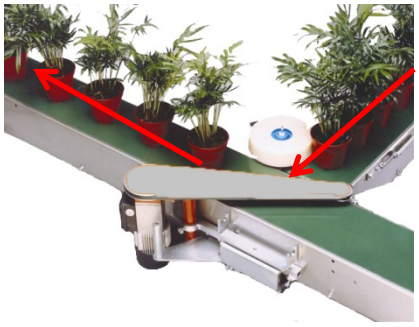
A dust chamber under belt and a cover plate over the belt (to prevent dehydration of substrate) can also be supplied.

3.5 Options

Depending on the intensity of use and customer requirements, this machine can be equipped with various options. Contact your sales consultant.

Options	Code	Specifications
String loop		Used in angled branch
straight suspension		
Angled suspension		
conduction rod		

A string loop is used where an angled branch is to be realized with product direction as shown here. With opposite product direction it is usually sufficient to place a guide rod.



3.6 Operation

This machine is intended for transporting pots or trays or transporting substrate automatically only. This machine is intended for processing pots, trays, substrate and other materials that are described in this manual only.

3.7 Machine workstations

This machine has operator places at the conveyor belt.

3.8 Controls

The motor is controlled via the control panel. The simplest version only has a switch for on / off of the belt. Expanded versions can have a mechanical vario or frequency inverter with which the speed can be set.

The machine is equipped with an emergency stop button Op de machine zijn depending on the version.

4 Transport

Follow all instructions described in this manual, in particular chapter safety.

On delivery of the machine, a Javo mechanical engineer must be present to unload the machine from the (freight) wagon.

Prior to moving the machine, the power should be disconnected. Make sure the cables are stowed sufficiently.

When moving within the company (when the machine does not need to be lifted) the state of the machine should be checked. Make sure the path to be traveled is free, so the machine can be moved to the desired position without obstacles.

If the machine is to be lifted for movement (outside the company), please contact your dealer or contact a professional shipping company.

The machine must be transported upright. The relative humidity should not be too high so that water condenses in the machine.

Report damage during or immediately after delivery to the transport company and to Javo BV. Take all necessary steps to prevent further damage.

5 Mounting, installation and commissioning

Follow all instructions described in this manual, in particular chapter safety.

This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Up to CE Marking of the line, commissioning of this machine is prohibited.

5.1 Placement

The machine must be placed on a flat surface, with sufficient weight capacity. Install the machine so that there is enough space left for service providing, safe instructions and / or cleaning, maintenance and / or inspections. Put the brakes on the castors before the machine is turned on.

This machine is not suitable to be used in the open air. Electrical components are only splashproof. Keep the machine away from rain and moisture. When using the machine in a humid location is unavoidable, you should use an RCD.

5.2 Facilities to take care of by the user

Prior to delivery of the machine, the required materials and facilities (air, power, substrate, etc.) needs to be present within 3 meters of machine.

Required power supply: 400 Volt, 3 Phase + Neutral + Earth. (N. America: 208/220V 60Hz.).

5.3 Mounting / Connecting

If applicable, the components supplied are to be mounted on the machine. Make sure that the moving parts are free. If the machine is complete, it can be connected (by a competent person) to the power supply.

Keep hands, hair, loose clothing and / or jewellery away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.

As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.

5.4 Check rotation direction

Check the rotation direction before you start working with the machine.

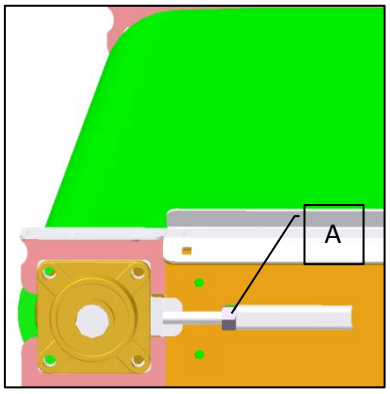
Procedure:

1. Connect the power cable.
2. Start the conveyor.
    a. Turn on the main switch.
3. Check the direction of rotation.
4. Turn off the main switch.
5. When rotation direction is incorrect:
    a. Remove the plug from the socket.
    b. Open the plug and switch 2 of the 3 phases in the plug. This should only be carried out by suitably qualified personnel.

Note: All the conveyors with the exception of the trough-belts can work with both a pulling and with a pressing drive. With a pulling drive more weight can be moved and the belt will be less likely to slip.

5.5 Check conveyor tension

Check the conveyor belt tension before you start working with the machine.



Procedure:

1. Check the conveyor belt tension. The correct tension is obtained when the belt in the middle deflects just a little (dependent on the length of the belt).
2. Adjust the belt tension if necessary .
    a. The tension can be adjusted by simultaneously turning the bolts on both sides of the belt (A).
    b. Tighten the four screws (B) to the block bearings.

At wall-mount-belts the tensioner is placed in a different position. Pull the roll to the end of the belt to tighten the belt.

6 Operation

Follow all instructions described in this manual, in particular chapter safety.

Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.

As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.

If a machine part is damaged or not working in the prescribed manner, work must be interrupted immediately. Resumption allowed only when the machine part is repaired or replaced and checked. Consult your dealer if the machine is not functioning properly.

6.1 Start

In the simplest version only a main switch is placed for turning the belt on / off. Expanded versions can have a mechanical vario or frequency inverter to set the speed.

The mechanical vario has a knob for setting the speed.
When a frequency inverter is placed, follow the instructions of the frequency inverter manual to adjust the speed.

6.2 Stop

Stop procedure:

1. Switch off the main switch.

6.3 Emergency stop (when present)

Emergency stop procedure:

1. Press the red emergency stop button on the machine to activate the emergency stop.

Restart after emergency stop procedure:

1. Ensure that the cause of the emergency is resolved.
2. Pull the red emergency stop button to reset.
3. Press the blue reset button.
4. Press the green button on the control panel to start the machine.

7 Maintenance

Follow all instructions described in this manual, in particular chapter safety.

Maintenance of this machine must be performed in compliance with warnings on the machine and in accordance with the user manual by qualified personnel.

Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.

As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.

Always unplug the plug from the socket before starting maintenance. Wear personal protective equipment (see section 2.3).

Inform operating personnel before start maintenance. Interrupt if possible the power (mains), before the machine is investigated or maintained by turning off the main switch and locking it and pull the plug from the socket. If work must be done with power supply (mains) voltage on the machine, work with an additional person who can operate the emergency stop.

7.1 Preventive Maintenance

For the following maintenance instructions normal use is considered. With heavy use, or use under extreme conditions, maintenance should be performed at shorter intervals.

Item	1x per...	Comments
Machine	Day	Check if moving parts are functioning correctly and not clamping and / or parts are broken or damaged in such a way that the operation is adversely affected. Have damaged parts repaired before use.
Belt	Day	Check tension. See section “Mounting, installation and commisioning”.
Safety components	Week	Test the safety circuit. See section “Test safety circuit”.
Pictograms	Week	Check readability and replace if necessary.
Electrical installation	Year	Check for damage.
Electric motors	Year	Remove dust.

7.2 Fault list

Problem	Possible cause	Action / Solution
Motor fault	mains voltage deviates more than 10% of the rated motor voltage	Provide the correct voltage
	Too high cooling air temperature	Provide cool air
	Poor cable connection	check the cable connection and repair if necessary
	Blown fuse	Replace fuse
	Too little cooling air caused by a clogged cooling air passage	Ensure proper inlet and outlet of the cooling air
The motor hums and takes too much power	Defect winding	Repair or replace the motor winding
Thermal fuses are blown	Motor fault	Contact a mechanic
	Motor is connected incorrectly	Connect the motor correct
Belt is not moving	The motor or drive is not functioning	Check motor and drive mechanism
	Pretension of the belt is too low (belt slips)	Adjust belt tension
Machine does not start	Emergency stop button is not pulled	Pull Emergency Stop button and reset the safety circuit by pressing the reset button
	Emergency stop button not reset	Reset the safety circuit by pressing the reset button
	Breaker tripped in main cabinet	See why circuit breaker has tripped. Remove obstacles to conveyors. Switch on the machine after solving the problem.
	Cable length too large causing voltage loss	Reduce cable length
	Voltage fluctuations caused by other devices on the same group	Ensure the correct voltage. Turn off other devices
	A second machine in line is not ready	Check second machine.

7.3 Drawings and schemes

The drawings accompanying this machine are supplied in a separate file. The wiring diagrams are included in the electrical cabinet of the machine.

7.4 Spare parts

Only original spare parts and accessories of Javo BV may be used on the machine.

Javo BV advises you to take certain parts in stock because of wear sensitivity and / or any expected downtime for re-ordering of the parts.

The spare parts list can be found on the assembly drawings. These can be found on JavoNet.

When ordering (spare) parts at Javo BV, the following information must be included: drawing number, item number, desired length (if applicable) and the desired number of pieces.

7.5 JavoNet

We recommend you to register your machine on JavoNet. This way you get online access to all technical drawings and documents pertaining to your machine.
Visit our website (www.javo.eu) for more information and to request an account.

7.6 Customer support and advice

Our technical department will answer your other questions about repair and maintenance of your machine and spare parts. We can help you with any questions regarding the purchase, use and settings of products and accessories.

8 Disposal of machine or machine parts

Follow all instructions described in this manual, in particular chapter safety.

Perform the following steps when disposing the machine:

1. Decommission the machine and remove electric and pneumatic power.
2. Drain and remove all consumables.
3. Scrap the machine according to the local legislation.

9 EG-conformity statement

EG-conformity statement for machines (directive 2006/42/EG, annex II, under A.)

CE

Javo BV
Westeinde 4
2211XP Noordwijkerhout
The Netherlands

Declares that:

Machine: ***Conveyor belt***
Type: ***……***

is in accordance with the **Machine directive 2006/42/EG** and complies with the provisions of the **EMC-directive 2004/108/EEG**

Complies with the harmonized European Standards:

Harmonized European standard	definition	Harmonized European standard	definition
NEN-EN-ISO 12100:2010	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology	NPR-ISO/TR 14121-2:2010	Safety of machinery - Risk assessment - Part 2: Practical guidance and examples of methods
NEN-EN-IEC 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements		

The Netherlands, Noordwijkerhout,
October 2014

Cees Bouwmeester
Director